

SECTION IV-3 - STRUCTURAL DESIGN CRITERIA

3.1 Geotechnical Report

A geotechnical report, prepared with information determined from a soil boring at the lift station site, shall be required in order to structurally design the lift station wetwell and valve vault. The geotechnical report shall contain, as a minimum, soil classifications, information on the water table location, the soil bearing capacity, and the lateral earth pressure coefficients.

3.2 Buoyancy

The wetwell and valve vault shall be designed to resist the buoyancy due to the presence of the ground water table located at finished grade or the 100 year base flood elevation, whichever is higher. Buoyancy calculations, signed and sealed by a licensed engineer, shall be submitted to the Fort Worth Water Department upon request.

3.3 Structural Design Considerations

In general, the wetwell and valve vault shall be constructed using cast in place reinforced concrete. Structural design calculations for the wetwell and valve vault shall be submitted by the design engineer to the Water Department upon request. The wetwell and valve vault shall be designed for, as a minimum, the following loading conditions:

A. Loading Condition #1

Wetwell empty with full lateral loads developed from groundwater and soil surcharge conditions.

B. Loading Condition #2

Wetwell filled to the top slab level with water without the backfill in place.

3.4 Structural Details

Detailing of reinforcement shall follow the requirements of ACI 315, ACI 318, and ACI 350R. All construction joints in water containing and below grade elements shall be provided with water-stops